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Teachers' awareness of Epistaxis management inside schools in the southern region of Saudi Arabia

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ABSTRACT

One of the most common otolaryngology emergencies worldwide is Epistaxis, and first aid awareness is essential for teachers in schools, as students easily injure themselves during school activities. This study aims to evaluate the knowledge, attitudes, and practices of epistaxis management among schoolteachers in the Southern region of Saudi Arabia. A cross-sectional study was conducted among school teachers in the Southern region of Saudi Arabia. The data were collected by an online questionnaire, which included the respondents' demographic data and questions about teachers' awareness of emergency management of epistaxis. In total, 440 completed questionnaires were used for data analysis. The results showed that teachers were somewhat familiar with the emergency management of epistaxis. Also, the results revealed that higher awareness levels were found among science teachers than among literature teachers. Of all the participants, 57.7% stated that they had not received information about first aid for stopping nosebleeds or epistaxis. A majority of the participants (59.1%) expressed that if they experience nosebleeding, they would attempt to stop it, with 38.9% indicating that they would apply pressure to the lower part of the nose. Around 67% of the participants mentioned that they would try to stop the bleeding by changing the position of their head, while only 36.4% reported that the head should be tilted forward. Teachers demonstrated a strong understanding of emergency epistaxis management, despite over 50% lacking training in first aid for nosebleeds. Those teaching scientific subjects showed greater awareness regarding first aid management.

Keywords: Epistaxis, management, teachers, children, awareness.

1. INTRODUCTION

Epistaxis is bleeding of the inner lining of the nose; it is one of the most prevalent otorhinolaryngology presentations encountered in emergency departments globally (Alshehri et al., 2018). Despite the need for medical intervention and hospital admission in some complicated cases, most presentations of epistaxis are self-limiting (Alasiri et al., 2022). It has been well-established that most cases of epistaxis can be controlled by first-aid measures such as simple digital compression of the lower third of the nose for 5 minutes (Tunkel et al., 2020). The pediatric demographic is not exempted from nose bleeds, necessitating adult assistance in dealing with this sudden condition. More than half of children between the ages of 6 and 10 have experienced at least one episode of epistaxis, thus, the importance of teachers' role in the management of epistaxis in a school setting (Alshehri et al., 2018).

According to Yassir et al., (2019) nearly 33% of teachers in Riyadh, Saudi Arabia, had adequate knowledge regarding the management of epistaxis. Around 70% of teachers encountered at least one case of epistaxis in their schools. Although 77% of the teachers knew that applying pressure to the nose is the way to manage a case of epistaxis, the exact measures like the site and duration of nasal compression were poor among most teachers (Yassir et al., 2019). Likewise, Alshehri et al., (2018) conducted a study in Al-Ahsa, Saudi Arabia, that showed almost similar results; the exposure to a case of epistaxis was nearly 70%, and only 25% knew the correct site to apply pressure. Moreover, 57% were aware that the head should be tilted down, and, shockingly, 15% showed no intention to stop the bleeding.

Nearly half of the teachers considered seeking emergency care if the bleeding did not stop after 10 minutes (Alshehri et al., 2018). Poor awareness and level of knowledge regarding acute management of epistaxis were observed previously in published articles in some Saudi Arabian regions. This could be explained by the lack of a reliable source of information, practice, or even confidence to handle any of these cases when encountered in school. This study aims to assess the knowledge of school staff in the Southern region of Saudi Arabia in managing and providing care for epistaxis. The findings from this study will contribute to raising awareness and understanding of epistaxis management, ultimately making schools safer for children.

2. MATERIALS AND METHODS

A descriptive cross-sectional study was conducted inside schools to determine the level of awareness among teachers about emergency management of epistaxis, we conducted an assessment in the Southern region of Saudi Arabia between July 2022 and September 2022. The target subjects were schoolteachers of all ages and nationalities in the Southern region of Saudi Arabia. A self-reported questionnaire was used to collect data, provided via Google Forms in an electronic format. The analysis was carried out with a Statistical Package for the Social Sciences (SPSS) software program after the data was entered into an Excel file.

Inclusion and Exclusion criteria

The study included schoolteachers of all ages and nationalities in the southern region of Saudi Arabia. Participants who were not working in the southern region of Saudi Arabia and those whose incomplete questionnaires were excluded.

Sample size

The study sample size was 440 teachers, as estimated using a Raosoft® Sample Size Calculator at a 5% margin of error, 95% level of confidence, and 50% response distribution. We aimed to get a larger sample size to avoid exclusions and increase power and validity.

Data collection instrument and procedures

A well-designed, self-administered online questionnaire was used to collect data. Informed consent was first acquired from all the subjects who agreed to participate after explaining the aim of the study. On several social media networks, including WhatsApp, Facebook, Twitter, and Telegram, a Google Form survey (Google LLC, Mountain View, CA, USA) was distributed electronically for data gathering. The investigators designed the questionnaire after thoroughly reviewing the literature about topics related to epistaxis management and teachers' awareness. Otorhinolaryngology professionals reviewed the survey to ensure it was clear, straightforward, and relevant to the study's objectives.

Furthermore, to make the questionnaire easier for the participants to read and comprehend, it was written in Arabic (the native language). Accredited translation software was used to translate the results into English. The questionnaire was divided into two sections, one for each participant's demographic data, including age, nationality, school type, and speciality. The second one was built to assess participants' awareness of emergency measures of epistaxis in schools.

Statistical Analysis

The collected questionnaire responses were revised, coded, and imported into a Microsoft Excel file (Microsoft Corp., Redmond, WA, USA). Then, they were transferred to SPSS software version 22 (Armonk, NY: IBM Corp) for analysis. Measurements were made to represent continuous variables by comparing the mean and standard deviation (Mean \pm SD), while frequencies and percentages were measured to describe categorical variables. The Chi-Square test (χ^2) was applied to explore the presence of significant relationships between variables. A p-value of less than 0.05 was judged as the significance level.

3. RESULTS

Demographic information

The respondents' demographic data is presented in a (Table 1). It shows that out of the 440 respondents, (97.3%) were Saudi citizens. (39.9%) of the participants were in the age category of 36 - 45 years, (29.7%) of the above 46 years, (25.6%) of them within 26 - 35 years, and lastly (4.5%) of them under 25 years. Most participants (95.5%) were from government schools —more than half of the participants were in the literature speciality.

Table 1 The demographic data of the respondents

Variable	Categories	Frequency	Percent
Age/ years	Under 25	20	4.5%
	26 - 35 years	113	25.7%
	36 - 45 years	176	40%
	Above 46 years	131	29.8%
Nationality	Saudi	429	97.5%
	Non-Saudi	11	2.5%
School type	Governmental	421	95.7%
	Special	19	4.3%
Teaching level	Kindergarten	12	2.7%
	Primary school	162	36.8%
	Intermediate school	144	32.7%
	Secondary school	122	27.7%
Teacher specialty	Scientific	197	44.8%
	Literature	243	55.2%

Teachers 'Awareness of Emergency Management of Epistaxis

Descriptive statistics were employed to assess the Teachers 'Awareness of Emergency Management of Epistaxis, including frequency and percentage. Moreover, the results presented in Table 2 indicated that more than half of the participants (57.7%) stated that they had not received information about first aid to stop nose bleeding or epistaxis. Most of the participants (59.1%) said if they experience nose bleeding, they will try to stop it, (38.9%) of participants stated that they will pressure the lower part of the nose, and (22.0%) started applying pressure to the upper part of the nose. The results of this study showed that (21.8%) of the participants stated that they would press the nose for 2 - 5 minutes, (16.1%) of them said Less than 2 minutes, and (15.2%) of them stated 11 – 20 minutes.

The results reported that the majority of participants (54.1%) stated they would try to fill the nose with a tissue or gauze. More than half of the participants (67%) stated that they would try to stop bleeding by changing the head position, (37.5%) of the participants said to tilt the head backward, and (36.4%) of them till the head forward. The results revealed that most participants (67.5%) said they

would try to put ice on the head or the nose, and the majority (89.1%) didn't use other methods. Lastly, the results showed that slightly lower than half of the participants (47%) stated that they should go to the emergency if the bleeding lasted more than 10 minutes.

Table 2 Teachers' awareness regarding emergency management of epistaxis

Questions	Categories	Frequency	Percent
Have you ever learned about how to administer first aid to stop nose bleeding or epistaxis?	Yes	186	42.3%
	No	254	57.7%
Had any student or school staff ever suffered nose bleeding or epistaxis?	Yes	275	62.5%
	No	165	37.5%
If you experience bleeding, would you try to stop it by putting pressure on your nose?	Yes	295	67%
	No	145	33%
If yes, where exactly is the pressure?	The upper part of the nose	111	25.2%
	The lower part of the nose	184	41.8%
	I won't put pressure on the nose	145	33%
For how long will you press the nose?	Less than 2 minutes	65	14.8%
	2 - 5 minutes	90	20.5%
	6 - 10 minutes	65	14.8%
	11 – 20 minutes	64	14.5%
	More than 20 minutes	11	2.5%
	I won't put pressure on the nose	145	33%
Do you want to try covering the nose with a tissue or gauze?	Yes	238	54.1%
	No	202	45.9%
Can you change the head position to stop bleeding?	Yes	314	71.4%
	No	126	28.6%
How do you change the head position?	Till it forward	151	34.3%
	Till it backward	163	37.1%
	I will not change the position of the head	126	28.6%
Will you try to put ice on the head or the nose?	Yes	297	67.5%
	No	143	32.5%
Will you use other methods?	Yes	48	10.9%
	No	392	89.1%
When do you think, you should go to the emergency?	I do not think it needs an emergency	24	5.5%
	If the bleeding lasts more than 10 minutes	207	47%
	If the bleeding lasts more than 30 minutes	124	28.2%
	If the bleeding lasts more than 60 minutes	85	19.3%

The relation between the speciality and the awareness level

The chi-square test analyzed how specialization and knowledge level are linked. The results in Table 3 indicated that science teachers were more likely to agree on trying to stop bleeding by changing the head position ($p = 0.014$). Other awareness questions did not show any significant association with the speciality.

Table 3 The relation between the speciality and the awareness level

Variable	Categories	Level of awareness		P value
		Good (n%)	Poor n (%)	
Age	Under 25 years	7 (35)	13 (65)	0.231
	26 - 35 years	32 (28.3)	81 (71.7)	
	36 - 45 years	46 (26.1)	130 (73.9)	
	Above 46 years	25 (19.1)	106 (80.9)	
Nationality	Saudi	108 (25.2)	321 (74.8)	0.739*
	Non-Saudi	2 (18.2)	9 (81.8)	
School type	Governmental	106 (25.2)	315 (74.8)	0.793*
	Special	4 (21.1)	15 (78.9)	
Teaching level	Kindergarten	7 (58.3)	5 (41.7)	0.001
	Primary school	27 (16.7)	135 (83.3)	
	Intermediate school	44 (30.6)	100 (69.4)	
	Secondary school	32 (26.2)	90 (73.8)	
Teacher specialty	Scientific	51 (25.9)	146 (74.1)	0.698
	Literature	59 (24.3)	184 (75.7)	
Have you ever heard about the importance of first aid in stopping nose bleeding or epistaxis?	Yes	45 (24.2)	141 (75.8)	0.738
	No	65 (25.6)	189 (74.4)	
Had any student or school staff ever suffered nose bleeding or epistaxis?	Yes	81 (29.5)	194 (70.5)	0.005
	No	29 (17.6)	136 (82.4)	

Fisher's exact test was utilized to calculate some P values, while the Chi-square test was used for other P values.

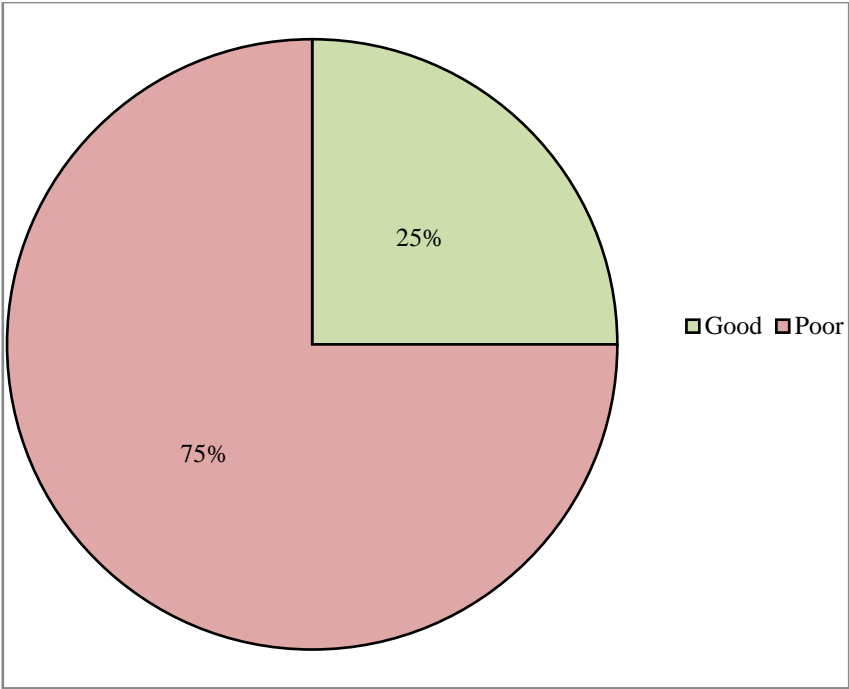


Figure 1 Level of Awareness of Emergency Management of Epistaxis

4. DISCUSSION

This study aims to assess the teachers' knowledge regarding epistaxis emergent care in schools. The results showed that the teachers had moderate awareness of emergency management of epistaxis. Many of the participants could correctly answer the questions. These findings align with Aljuaid et al., (2021) who found that most of the teachers in the Taif region, Saudi Arabia, had fair awareness regarding epistaxis and the measures for its management. Also, these findings are inconsistent with who found that do the teachers in the Central Anatolia Region were familiar with first aid and epistaxis emergent care. Tunkel et al., (2020) found that School teachers in Debre Tabor Town, North-central Ethiopia, have insufficient knowledge of first aid.

Moreover, the results showed that the highest awareness was about putting ice on the head or the nose and the emergency duration of nasal bleeding. While the lowest level of understanding was regarding the duration of nasal compression, these results were similar to (Aljuaid et al., 2021). Moreover, this study found that more than half of the teachers stated that their students had experienced epistaxis before. Similarly, studies conducted by Alshehri et al., (2018) show that wed epistaxis is one of the most common injuries during sports or games in elementary school. This study found that more than half of the participants (57.7%) have not received information about first aid to stop nose bleeding or epistaxis, which means there is a lack of teachers with some training programs or courses reacted to this area. This finding was consistent with Alshehri et al., (2018) who found that 45% of Alahssa, Saudi Arabia teachers never received information or training about epistaxis management.

Moreover, the study of reported that the teachers' first aid training and education in Turkey were insufficient. In addition, the study found that teachers' awareness was relatively better among those teaching scientific subjects; this finding is in agreement with Alasiri et al., (2022) who found that teachers with science speciality had a higher level of awareness of emergency management of epistaxis comparison with the teachers with literature speciality. This study has potential limitations; the online distribution of the survey is one of them since it limited the responses due to the lack of participation of some of the teachers to whom the survey was delivered; this limitation was overcome by direct communication with the teachers whose participation was needed. Another limitation was the limitation of generalizability due to the specificity of the geographical region, and the increase in sample size was the strategy used to overcome this limitation.

5. CONCLUSION

The teachers were knowledgeable of emergency management of epistaxis, although more than half of them had not received information about first aid to stop nose bleeding or epistaxis. Higher awareness was noticed among those teaching scientific subjects. Our recommendation would be to organize training programs or courses in related management of epistaxis that teachers can undergo.

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Authors Contribution

Sarah khalid Albarrak, Tawfiq Khurayzi, Malath Aref Alrowili, Lubna Hossam Aloufi, Reema Abdullah Aldawish, Abdullah Yahya Madkhali, Mohammed Hamad Al-Mansour, Hezam Shalan Alshahrani, Sahar Mohammed Alotaibi, Gharam Mahmood Alsalmi, Mohammed Hassan Matari contributed to this research paper and oversaw all aspects of the project. They conceptualized the study, designed the methodology, conducted the survey, and analyzed the data. The manuscript was written, incorporating an extensive literature review to position the research within existing knowledge. Their responsibilities extended to managing communications with participating schools, ensuring ethical compliance, and handling manuscript revisions.

Ethical Approval

The Jazan Health Ethics Committee reviewed and approved the research protocol at the Directorate of Health Affairs in Jazan, with approval number 22057.

Informed Consent

Additional informed consent was obtained from all participants before completing the questionnaire.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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